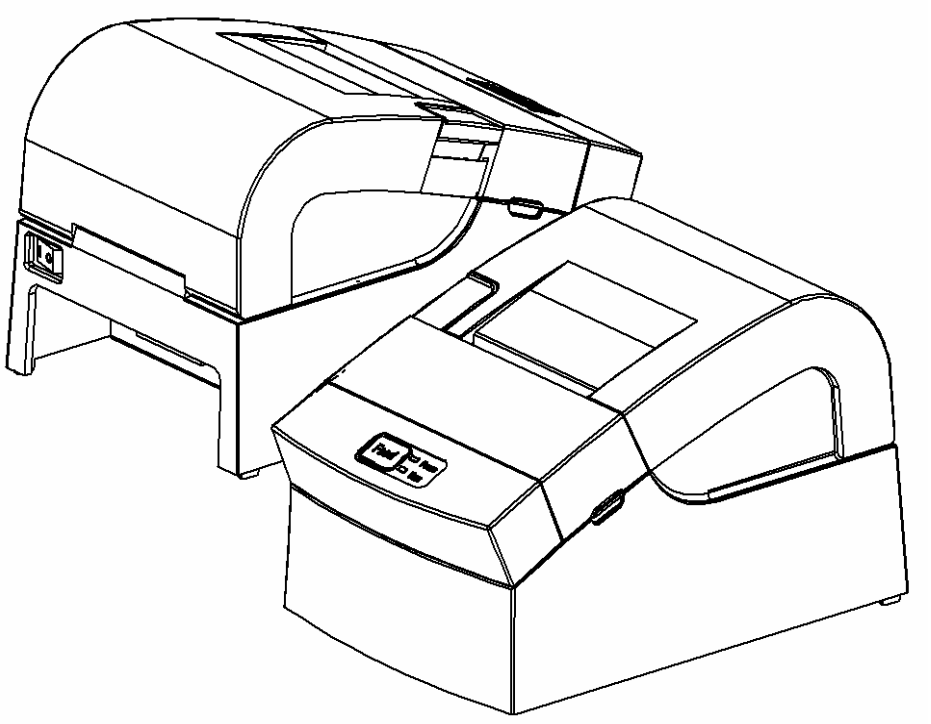
BIXOLON®

User Manual

SRP-150

Thermal Printer

Rev. 1.05



http://www.bixolon.com

■ Safety Warning

Proper use of this product can prevent hazardous or physical harm. Make sure all following instructions are followed when using this product.

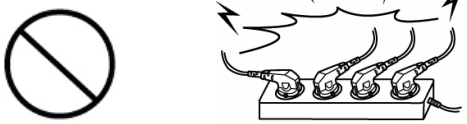
Warning

Violation of following instructions may cause serious injure or risk of life.

Do not connect several plugs into a socket.

- High temperature or fire may cause a danger.
- Use the plug before wiping it in case of contamination of foreign material or water.
- Do not insert the plug into a socket with loosened slots.
- Use approved multi-slots socket.

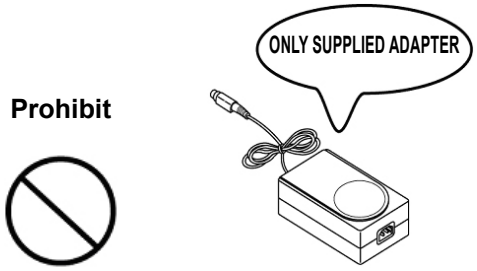
Prohibit



Please use the adapter provided.

- Other adapter may cause a danger.

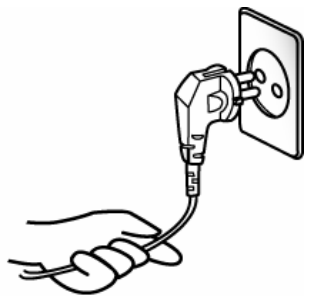
Prohibit



Do not pull the power cord when unplugging.

- Power cord may cause a fire or malfunction resulting in harms.

Prohibit



Keep it in plastic bag and keep out of reach of children.

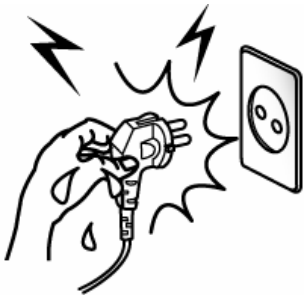
- Plastic bag capped on the children's heads may cause hazard.

Prohibit

Do not insert or remove the plug with wet hands.

- May case electric shock.

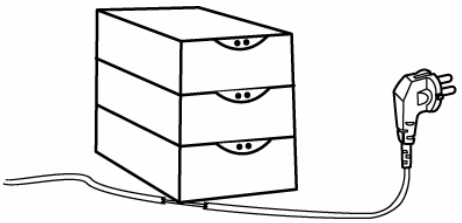
Prohibit



Do not bend the power cord or put heavy things on i t, ensuring no damage to the cord.

- May cause a fire.

Prohibit



Caution

Violation of following instructions may cause slight injure or damage to the product.

Power off and take following actions immediately in case of the product producing smoke, or strange smell or sound.

- Power off the printer and remove the plug from the socket immediately in case of exceptional situation.
- Make sure whether there is smoke, and take it to distributor f or repair.

Plug Prohibit

Keep the drier out of reach of children.

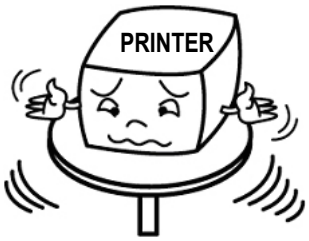
Eating the drier may result in serious harm to health.

Prohibit

Install the product in a stable place.

- Falling down may cause damage to the product or injure.

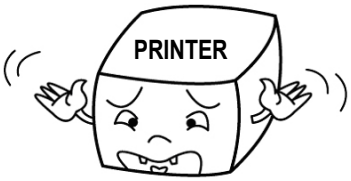
Prohibit



Use the approved product. Do not disassemble, repair or alter the product.

- Consult the distributor for damage to the product.
- Do not touch the sharp blade on the auto cutter.

No disassembling



Note that no water or foreign material is allowed in the printer body.

- Power off the printer, unplug from the socket and contact the distributor in case that there is water or foreign material in the body.

Prohibit

Do not use a malfunctioned product that may cause a fire or electric shock.

- Power off the printer, remove the plug from the socket and co ntact the distributor.

Socket Prohibit

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BIXOLON LOGO is the registered trademark of BIXOLON.

For the distributor and user's attention, this machine has the same model as the one commercially registered EMI (electromagnetic interference). If you sell or purchase by mistake, please change back into the household type.

We at BIXOLON maintain ongoing efforts to enhance and upgrade the functions and quality of all our products. In following, product specifications and/or user manual content may be changed without prior notice.

■ WEEE (Waste Electrical and Electric Equipment)

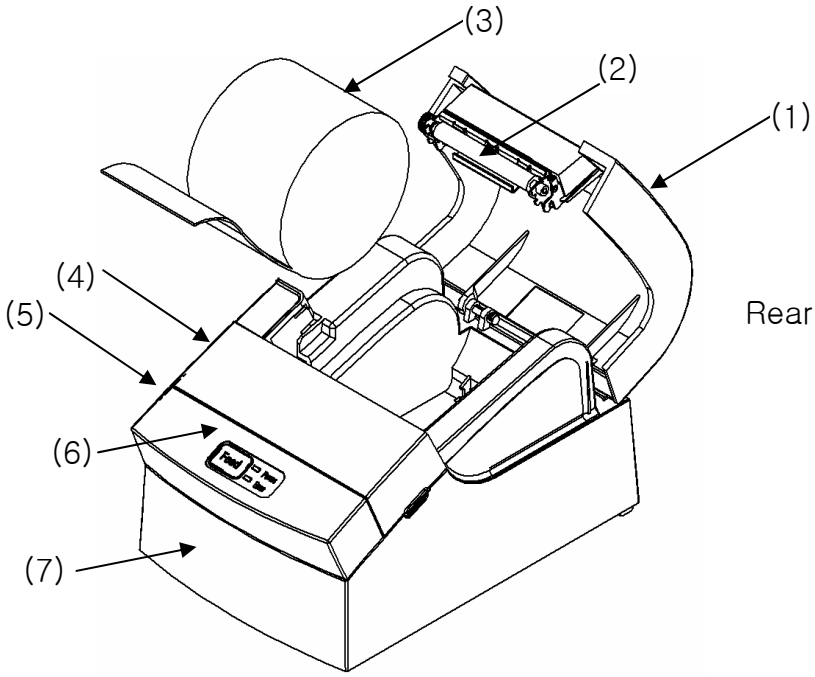
The product marked with this symbol or relevant text indicates that the product cannot be discarded with other family wastes at the end of its life. Please separately dispose of it from other wastes to avoid any harm to the environment and human being. Observe the Recycling Policy to make full use of the limited resource. The household user can contact the distributor or local service office for any information about proper disposal methods and premises. The commercial user can contact the supplier or dispose as per the terms provided in the Purchase Contract. This product cannot be disposed with other commercial wastes.

■ Symbol material: PET

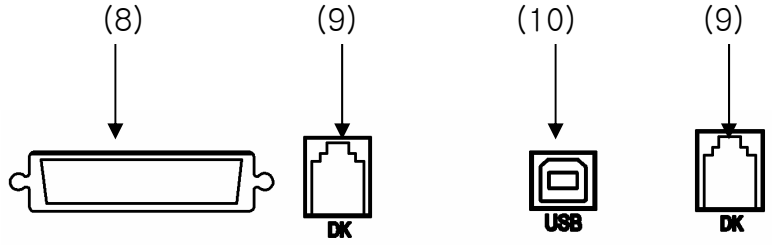
■ Introduction

Assembly Name

(1) COVER PAPER
(2) ROLLER ASS'Y
(3) PAPER
(4) COVER CUTTER
(5) COVER FUCNTION
(6) CASE MAIN
(7) CASE LOWER
(8) COMMUNICATION PORT
- P ARALLEL/SERIAL
(9) CASH DRAWER (RJ-11)
(10) USB COMMUNICATION



Rear



SRP-150P/S SRP-150U

SRP-150P/S,SRP-150U The printer is a banking peripheral device and can be used with ECR, POS etc.

Its main features are shown as follows:

1. High speed printing;
2. Thermal printing with low noise;
3. RS-232 series interface(SRP-150), IEEE1284 parallel interface(SRP-150P), USB2.0 interface(SRP-150U).
4. Reception of data is possible via Data buffer, even in printing process.
5. The Document Image Processing button enables selection of different printing density.

Please read this User Manual carefully before using SRP-150P/S, SRP-150U.

※ Note
The socket is required near the machine for use.

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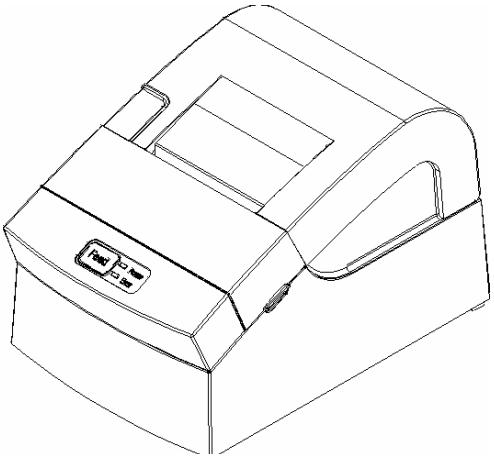
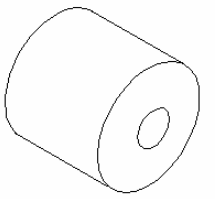
1. Installation and basic operations

1-1 Unpacking

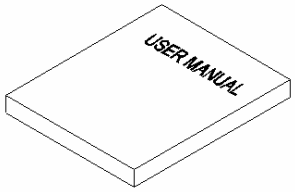
Make sure all following items are available. Please contact the distributor immediately in case of loss or damage.



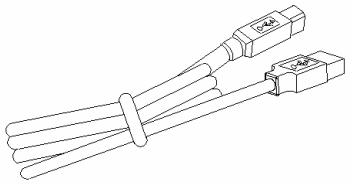
Printer



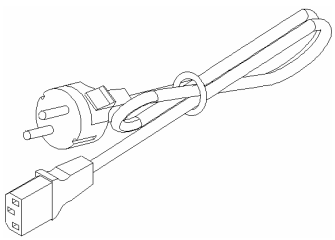
Paper



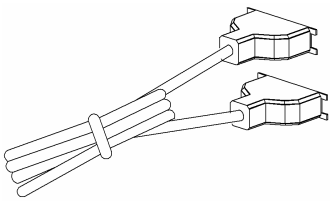
User Manual



Cable interface
USB



Power cord



Cable interface
Serial, parallel cable

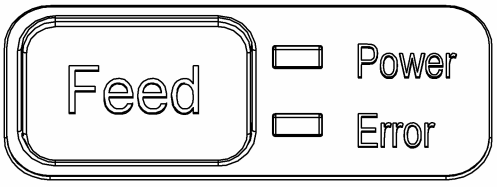
- Only one of the following cable interfaces is provided according to the model you purchase, USB, parallel or serial interface.

1-2 Installation Site

Keep the product away from the high temperature or direct sunlight.
Do not place it at the place full of moisture.
Keep it at a stable place and away from shock.
Leave enough space for the printer for convenient use.

1-3 Operation Panel

The Panel consists of one button and two indicators.



Button

FEED

To print one paper, press the FEED button.
To continuously print, press and hold the FEED button.

Indicator

The indicator indicates the state of the printer.

POWER (green)

The indicator lights when the printer powers on.

ERROR (red)

The indicator lights when the paper is used out, or the printer is in idle, or the cover opens.

2. Connection

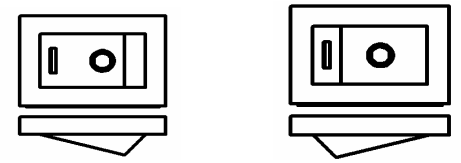
2-1 AC Adapter Connection

It is required to used the power cord and adapter accompanied with the printer.

※ **Warning**
Improper power unit may cause a fire or hazard.

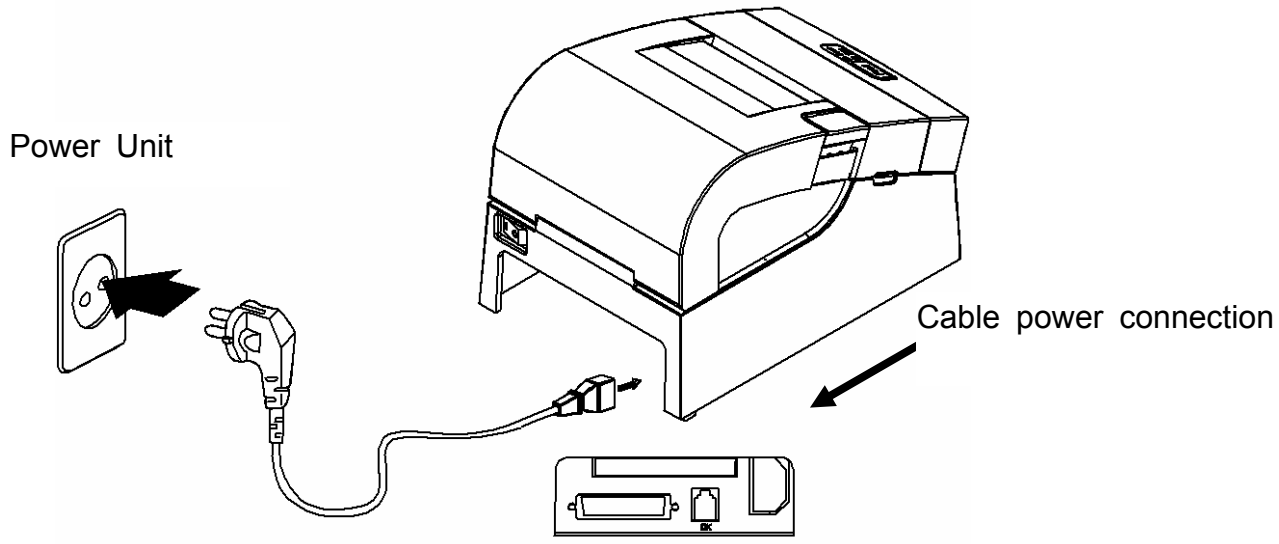
※ **Note**
1. Operate the product in the following orders for safety and durability after power on.

1) Connect power cord to the printer.
2) Identify the power switch of the printer.
   - The product is delivered in the “OFF” state. It is necessary to switch to “ON”.
   - The printer power switch OFF



ON **OFF**

3) Connect the power cord with the power unit.
4) Place the power switch to “ON”



2. When the printer is "ON”, the repeated switch of power supply will affect the service life and performance of the printer.

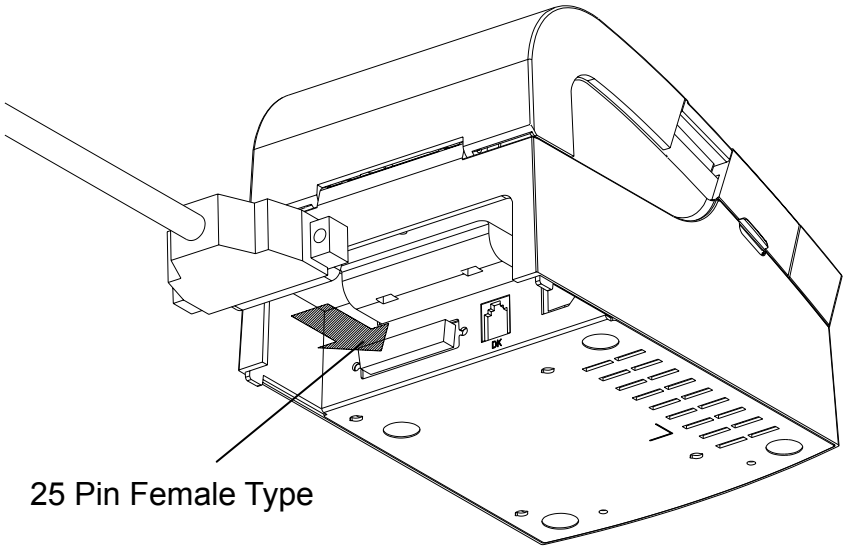
2-2 Interface Connection

USB, serial or parallel interface cable is required for connecting the printer to the computer.

- Make sure the power of the printer and computer is switched on, then connect the cable interface to the printer.

- In the case of serial and parallel cable, assemble as the following picture shown.

- Connect the computer to the other end.



Make sure the power unit is removed from the plug of the device when the printer powers on or off, otherwise damage may be caused to the printer and power unit.

1. Make sure the printer has been switched off and the power unit removed from the plug of the device.

2. Check the label on the power unit to make sure the power plug is compatible with the required voltage.

3. Connect the DC cable connector of the power unit to the power connector of the printer as the following instruction.

2-2-1 SRP-150S Serial Interface

Printer			Case Main	
1	-		1	-
2	TXD	----------	2	RXD
3	RXD	----------	3	TXD
4	DSR	----------	4	DTR
5	GND	----------	5	GND
6	DTR	----------	6	DSF
7	CTS	----------	7	RTS
8	RTS	----------	8	CTS
9	-		9	-
Shield		----------	Shield	
9PIN MALE			9 PIN FEMALE	

2-2-2 SRP-150P Parallel Interface

Printer			Case Main	
1	nStrobe	----------	1	nStrobe
2	Data 0 (LSB)	----------	2	Data 0 (LSB)
3	Data 1	----------	3	Data 1
4	Data 2	----------	4	Data 2
5	Data 3	----------	5	Data 3
6	Data 4	----------	6	Data 4
7	Data 5	----------	7	Data 5
8	Data 6	----------	8	Data 6
9	Data 7 (MSB)	----------	9	Data 7 (MSB)
10	nAck	----------	10	nAck
11	Busy	----------	11	Busy
12	Perror	----------	12	Perror
13	Select	----------	13	Select
14	nAutoFeed	----------	14	nAutoFeed
15	nFault	----------	15	nFault
16	nInit	----------	16	nInit
17	nSelsctIn	----------	17	nSelsctIn
18~25	GND	----------	18~25	GND
FGND		----------	FGND	
25 PINE MALE			25 PINE MALE	

2-2-3 SRP-150U USB Interface

Printer			Case Main	
1	VBUS	----------	1	VBUS
2	D-	----------	2	D-
3	D+	----------	3	D+
4	GND	----------	4	GND
Shield		----------	Shield	
B type			A type	

2-2-4 Cash Drawer Cable Connection (Option)

Pin No.	Description	Direction
1	Frame GND	-
2	Drawer Kick-Out Driver Signal #1	Output
3	Drawer Open / Close Signal	Input
4	+12V	-
5	Drawer Kick-Out Driver Signal #2	Output
6	Signal GND	-

3. DIP Switch Setting

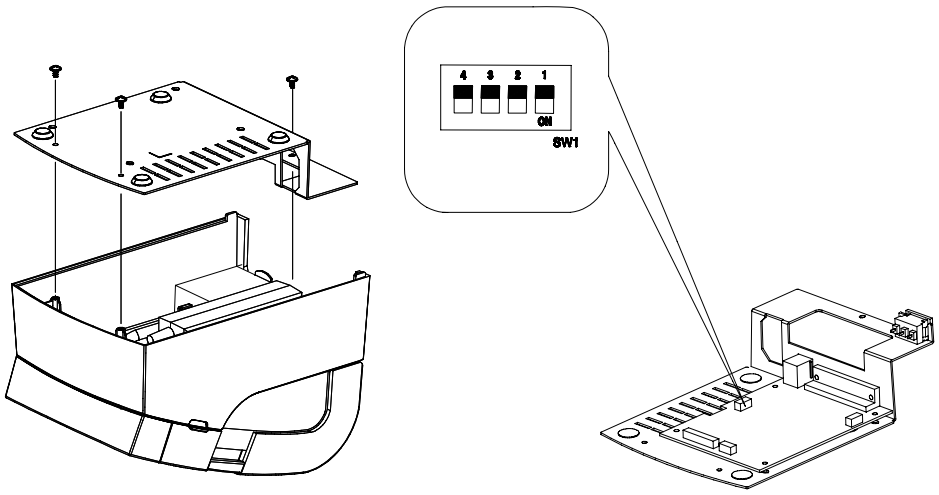
※ Note

It is required to turn off the printer when setting the DIP switch to prevent electrical rejection and damage to the printer.
Replacement of the contact device or the printing density can be set on the DIP switch.

1. Make sure the printer powers off.

2. Release the tray by removing 3 screws. The PCB on the tray is exposed.

3. Note that when the switch turns to “ON”, use the tweezer or sharp tool to unscrew the switch.



Refer to the following settings of the DIP switch.

3-1 Setting the DIP Switches

3-1-1 Setting the DIP switch (RS-232C Serial Interface)

• DIP Switch

SW	Function	ON	OFF	Default
1-1	Auto Cutter	Disable	Enable	OFF
1-2	Reserved			-
1-3	Baud Rate	Refer to Table 1		OFF
1-4				OFF

• Table 1 – Baud rate (bps) Selection

Transmission Speed	1-3	1-4	Default
9600	OFF	OFF	9600
19200	OFF	ON	
38400	ON	OFF	
115200	ON	ON	

3-1-2 Setting the DIP switch (IEEE1284 Parallel, USB2.0 Interface)

• DIP Switch

SW	Function	ON	OFF	Default
1-1	Auto Cutter	Disable	Enable	OFF
1-2	Reserved			-
1-3				-
1-4				-

3-2 Setting the Memory Switches

This printer has “Memory Switch” set which is software switches. Memory Switch set has “MSW1”, “MSW2”, “MSW8”, “MSW9” “Customize value”, “Serial communication condition”. “Memory Switch setting utility” can change the Memory Switch set to ON or OFF as shown in the table below. (default : all OFF)

※ NOTE

- The Memory Switch is available to be changed by three methods.
  - Memory Switch setting utility.
  - Control from BXL/POS command.

Settings of the Memory Switch are stored in the NV memory : therefore, even if the printer is turned off, the settings are maintained.

MSW2

Switch	Function	ON	OFF
1	Reserved	-	Fixed to OFF
2	Auto Cutter Function	Full Cutting	Partial Cutting
3~8	Code Page Selection	Refer to following Table	

MSW2-8	MSW2-7	MSW2-6	MSW2-5	MSW2-4	MSW2-3	Character Table
OFF	OFF	OFF	OFF	OFF	OFF	Page 0 437 (USA,standard Europe)
OFF	OFF	OFF	OFF	ON	OFF	Page 1 Katakana
OFF	OFF	OFF	ON	OFF	OFF	Page 2 850 (Multilingual)
OFF	OFF	OFF	ON	ON	OFF	Page 3 860 (Portuguese)
OFF	OFF	ON	OFF	OFF	OFF	Page 4 863 (Canadian-French)
OFF	OFF	ON	OFF	ON	OFF	Page 5 865 (Nordic)
OFF	OFF	ON	ON	OFF	OFF	Page 16 1252 (Latin I)
OFF	OFF	ON	ON	ON	OFF	Page 17 866 (Cyrillic #2)
OFF	ON	OFF	OFF	OFF	OFF	Page 18 852 (Latin 2)
OFF	ON	OFF	OFF	ON	OFF	Page 19 858 (Euro)
OFF	ON	OFF	ON	OFF	OFF	Page 21 862 (Hebrew DOS code)
OFF	ON	OFF	ON	ON	OFF	Page 22 864 (Arabic)
OFF	ON	ON	OFF	OFF	OFF	Page 23 Thai42
OFF	ON	ON	OFF	ON	OFF	Page 24 1253 (Greek)
OFF	ON	ON	ON	OFF	OFF	Page 25 1254 (Turkish)
OFF	ON	ON	ON	ON	OFF	Page 26 1257 (Baltic)
ON	OFF	OFF	OFF	OFF	OFF	Page 27 Farsi
ON	OFF	OFF	OFF	ON	OFF	Page 28 1251 (Cyrillic)
ON	OFF	OFF	ON	OFF	OFF	Page 29 737 (Greek)
ON	OFF	OFF	ON	ON	OFF	Page 30 775 (Baltic)
ON	OFF	ON	OFF	OFF	OFF	Page 31 Thai14
ON	OFF	ON	OFF	ON	OFF	Page 32 Hebrew Old code
ON	OFF	ON	ON	OFF	OFF	Page 33 1255 (Hebrew Newcode)
ON	OFF	ON	ON	ON	OFF	Page 34 Thai11
ON	ON	OFF	OFF	OFF	OFF	Page 35 Thai18
ON	ON	OFF	OFF	ON	OFF	Page 36 855 (Cyrillic)
ON	ON	OFF	ON	OFF	OFF	Page 37 857 (Turkish)
ON	ON	OFF	ON	ON	OFF	Page 38 928 (Greek)
ON	ON	ON	OFF	OFF	OFF	Page 39 Thai16
ON	ON	ON	OFF	ON	OFF	Reserved
ON	ON	ON	ON	OFF	OFF	Reserved
ON	ON	ON	ON	ON	OFF	Reserved
OFF	OFF	OFF	OFF	OFF	ON	Page 43 (PC852e)
OFF	OFF	OFF	OFF	ON	ON	Page 44 (PC864e)
OFF	OFF	OFF	ON	OFF	ON	Page 45 (PC865/PC1252e)
OFF	OFF	OFF	ON	ON	ON	Reserved
OFF	OFF	ON	OFF	OFF	ON	Page 47 ISO 8859-1(Latin I)

MSW9

Switch	Function	ON	OFF
1	Language Selection	Korean/Chinese	ENG
2~4	Reserved	-	Fixed to OFF
5~8	International Character Set Selection	Refer to following Table	

MSW9-8	MSW9-7	MSW9-6	MSW9-5	International Character Set
OFF	OFF	OFF	OFF	0. USA
OFF	OFF	OFF	ON	1. France
OFF	OFF	ON	OFF	2. Germany
OFF	OFF	ON	ON	3. UK
OFF	ON	OFF	OFF	4. Denmark
OFF	ON	OFF	ON	5. Sweden
OFF	ON	ON	OFF	6. Italy
OFF	ON	ON	ON	7. Spain
ON	OFF	OFF	OFF	8. Japan
ON	OFF	OFF	ON	9. Norway
ON	OFF	ON	OFF	10. Denmark II
ON	OFF	ON	ON	11. Spain II
ON	ON	OFF	OFF	12. Latin America
ON	ON	OFF	ON	13. Korea

MSW10

Switch	Function	ON	OFF
1	Reserved	-	Fixed to OFF
2	Font Size Selection	Font C(9x24)	Font A(12x24)
3	Print Density	Dark	Normal
4~5	Reserved	-	Fixed to OFF
6~8	Partial Cut Step Selection	Refer to following Table	

MSW10-8	MSW10-7	MSW10-6	Step
OFF	OFF	OFF	85 Steps (Default)
OFF	OFF	ON	82 Steps
OFF	ON	OFF	83 Steps
OFF	ON	ON	84 Steps
ON	OFF	OFF	86 Steps
ON	OFF	ON	87 Steps
ON	ON	OFF	88 Steps
ON	ON	ON	89 Steps

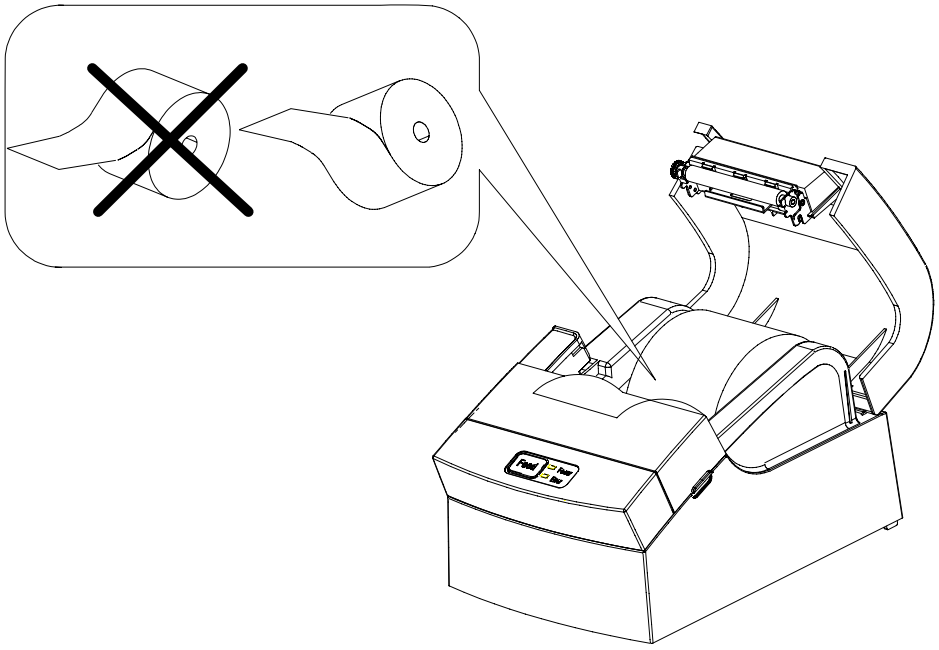
4. Paper Loading

Please use the standard paper.

※ **Note**
It is important to power off the printer in the process of paper loading.

1. Open the paper cover and take out all used paper.

2. Load the paper in the proper direction as the following shown in case of paper jam.



3. Place the paper to the extent that it can be exposed from the printer. Additionally, close the cover.

4. Power on the printer.

5. Sample Test

1. Sample Printing Test

* Sample Test Start-up

After loading paper and close the cover and the PAPER FEED button pressed and held, the sample test will start upon power on. The self-test will conduct printing according to the existing setting of the following information available.

- Software version control
- DIP switch state

* Preparation State

The printer will print the message “Please press the FEED BUTTON” after printing the existing setting state. LED flickering indicates the printer is in the preparation state for printing test.

2. Self-test Completion

Upon the printing test completion, the printer will print " ** TEST COMPLETED **”, indicating the test is finished.
It is necessary to restart printing if the self-test is not over yet.

6. Hexadecimal Dumping

This function is designed for advanced user to send and receive the data accurately and identify the software problems. The Hexadecimal Dumping function is helpful for searching special terms because all data and command statements are printed in hexadecimal form. Please follow the steps below to use the hexadecimal dumping function.

1. Open the paper cover after the printer powers off.

2. With the FEED button pressed and held, power off the printer, then close the cover

3. Go to the Hexadecimal Dumping mode.

4. Please execute the item where the printer sends data.
   Printer prints all data in two separate rows.
   The hexadecimal code appears in the first row, and the ASCII code corresponding to the hexadecimal code in the second row.

```
1B  21  00  1B  26  02  40  40      . ! . . & . @ @
1B  25  01  1B  63  34  00  1B      . % . . c4 . .
41  42  43  44  45  46  47  48      ABCDEFGH
```

   - If there is no corresponding ASCII code, the period (.) is printed.
   - In the Hexadecimal Dumping mode, do not use other commands than DEL EOT and DLE ENQ.

5. Upon the hexadecimal dumping is finished, power off the printer.

6. The Hexadecimal Dumping mode will be removed when the printer powers on next time.

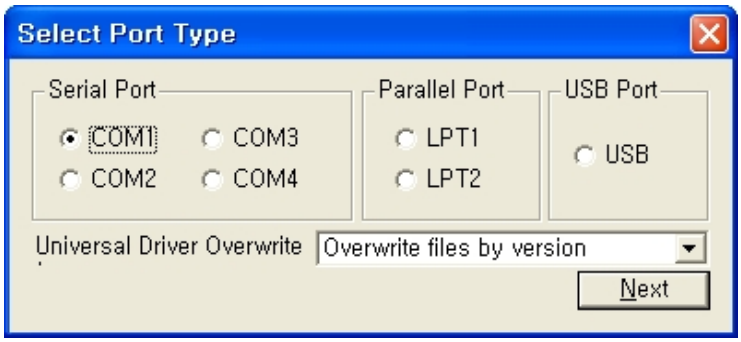
7. Specification

Printing Method	Thermal printing	
Resolution	203Dpi (8 dot/mm)	
Printing Width	48mm	
Paper Width	58.0±0.5mm	
Strings Per Line	32 (Font A) (12x24) / 42 (Font C) (9x24)	
Printing Speed	About 19 lines/sec Max. 65 mm/sec at 25℃/printing duty 12.5%	
Paper	Thickness: 0.062 ~ 0.075mm	
	Roller size: Ø80mm	
	Paper size - Internal diameter: Ø12mm (0.47”) - External diameter: Ø18mm (0.71”)	
Receive Buffer Size	4K bytes	
Voltage	100~240 VAC	
Environment	Temperature	0 ~ 45℃ (operating) -20 ~ 60℃ (storage)
	Humidity	10 ~ 80% RH (operating) 10 ~ 90% RH (storage)
MCBF	Mean time to repair	20,000,000 line
	Thermal tab	100km

8. WINDOWS Driver Setting

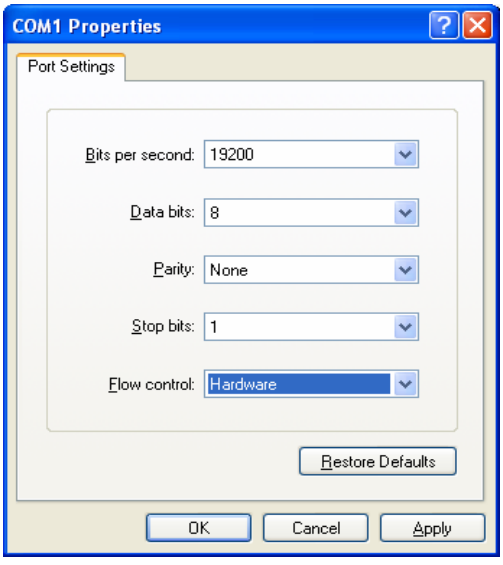
8-1 Serial (RS-232C) Interface Model Windows Driver Setting

1. After executing the proudct setting CD, go to Thermal Printer > SRP-150 > Drivers > Windows Driver > Drivers folder > exectute SRP-150_WIN_Vx.x.xx.exe
2. Select “Next” from the window at the initial setting.
3. Install Select “Install” from the “Ready to Install the Program” window.
4. Select a serial port from the "Select Port Type”, and then select “Next”.



(Fig 1)

5. The computer will reboot after selecting an example from the “Question”.
6. Upon reboot, operate as follows: Start > Setting > Printer and Scan > BIXOLON SRP-150 Icon > Right click > Select “Property”.
7. After selecting the “Port” button from the “Property” window, select “Self-diagnosis” and “Agree”, and then select “OK”.



8. After selecting the “General” from the “Property” window, select test page for printing and make sure whether the speed is faster.

8-2 Parallel (IEEE1284) Interface Windows Driver Setting

1. After executing the proudct setting CD, go to Thermal Printer > SRP-150 > Drivers > Windows Driver > Drivers folder > exectute SRP-150_WIN_Vx.x.xx.exe
2. Select “Next” from the window at the initial setting.
3. Install Select “Install” from the “Ready to Install the Program” window.
4. Select a serial port from the "Select Port Type”, and then select “Next”. (See Fig 1)
5. The computer will reboot after selecting an example from the “Question”.
6. Upon reboot, operate as follows: Start > Setting > Printer and Scan > BIXOLON SRP-150 Icon > Right click > Select “Property”.
7. After selecting the “General” from the “Property” window, select test page for printing and make sure whether the speed is faster.

8-3 USB2.0 Interface Model Windows Driver Setting

1. After executing the proudct setting CD, go to Thermal Printer > SRP-150 > Drivers > Windows Driver > Drivers folder > exectute SRP-150_WIN_Vx.x.xx.exe
2. Select “Next” from the window at the initial setting.
3. Install Select “Install” from the “Ready to Install the Program” window.
4. Select a serial port from the "Select Port Type”, and then select “Next”. (See Fig 1)

5-1. For WINDOW 98/ME

① The computer will reboot after set as the above.
② Upon reboot, the printer will restart after shut down.
③ When “Continue to find out the new hardware” window pops up, select “Reboot the computer with USB drive upon setup”.

5-2. For WINDOW 2000/VISTA/2008 Server/7

① Open the “Information” window, restart the printer after power it off, and then select “OK”.
② The computer will reboot after the setting is completed.

5-3. For WINDOW XP/2003 Server

① Open the “Information” window, restart the printer after power it off, and then select “OK”.
② Open the “New hardware check” window, select “Proceed to next”. The computer will reboot after the USB driver setting is completed.

※ Reference

Click “OK” or “Continue Anyway” when the information related to the electronic signature appears during the setting process.

6. Upon reboot, operate as follows: Start > Setting > Printer and Scan > BIXOLON SRP-150 Icon > Right click > Select “Property”.
7. After selecting the “General” from the “Property” window, select test page for printing and make sure whether the speed is faster.

9. Control Command List

Command	Name
HT	Horizontal tab
LF	To print and Line Feed
CR	To print and Carriage Return
DLE EOT	To send the real time status
ESC SP	To set the right side space of the characters
ESC !	To set the printing mode
ESC $	To set the absolute position
ESC %	To select/cancel the defined character
ESC &	To select the character to define
ESC *	To set the bit image mode
ESC -	To set/clear the underline mode
ESC 2	To set the 1/6 inches line space
ESC 3	To set the line space
ESC =	To set the peripheral devices
ESC ?	To cancel the defined character
ESC @	To initialize the printer
ESC D	To set the position of horizontal tab
ESC E	To select the highlight mode
ESC J	To print and paper feed
ESC R	To select the Multilanguage character set
ESC V	To set/clear 90° clockwise rotated character
ESC \	To set the relative position
ESC a	To align position
Esc d	To print and n-line feed
Esc p	To generate pulse
Esc t	To select the character code table
Esc {	To select/clear vertical inverted character printing
FS p	To print the NV image
FS q	To define the NV image
GS !	To select the character size
GS (E	To Customize NV memory area
GS *	To define download bit image
GS /	To print the download bit image
GS :	To begin/end macro definition
GS B	To set/clear black and with inversion mode
GS H	To select HRI character printing position
GS I	To transmit the printer ID
GS L	To set the left margin
GS V	To Select cut mode and cut paper
GS W	To set the output size
GS ^	To run the macro
GS f	To select the font for HRI characters
GS h	To select the bar code height
GS k	To print the bar code
GS v	To print the raster bit image
GS w	To select the bar code size

10. Summary of Control Command

HT

[Name] Horizontal Tab
[Type] ASCII HT
HEX 09
Decimal 9
[Description] Set the horizontal tab if you want to use the print position.

LF

[Name] To print and line feed
[Type] ASCII LF
HEX 0A
DECIMAL 10
[Description] To print the data in the printer buffer and feed one line.

CR

[Name] To print and carriage return
[Type] ASCII HT
HEX 0D
DECIMAL 13
[Description] To print the data in the printer buffer and move the printer head to the beginning position of the line.

DLE EOT *n*

[Name] To send the real-time status
[Type] ASCII DLE EOT *n*
HEX 10 04 *n*
DECIMAL 16 4 *n*
[Range] $1 \le n \le 4$
[Description] Real-time status of the printer selected by n as shown below will be sent.

n = *1*: To transmit the printer status
n = *2*: To transmit the off-line status
n = *3*: To transmit the error status
n = *4*: To transmit the paper-sensing status

n = 1: Printer Status

Bit	Off/On	HEX	DECIMAL	Function
0	Off	00	0	Not used. Fixed to Off
1	On	02	2	Not used. Fixed to On
2	Off	00	0	Not used
3	Off	00	0	On-line
	On	08	8	Off-line
4	On	10	16	Not used. Fixed to On
5-6	-	-	-	Not defined
7	Off	00	0	Not used. Fixed to Off

n = 2: Off-line Status

Bit	Off/On	HEX	DECIMAL	Function
0	Off	00	0	Not used. Fixed to Off
1	On	02	2	Not used. Fixed to On
2	Off	00	0	Cover is closed
	On	04	4	Cover is open
3	Off	00	0	Paper is not fed through the paper feed button
	On	08	8	Paper is fed through the paper feed button
4	On	10	16	Not used. Fixed to On
5	Off	00	0	Not used. Fixed to Off
6	Off	00	0	Not used. Fixed to Off
7	Off	00	0	Not used. Fixed to Off

n = 3: Error Status

Bit	Off/On	HEX	DECIMAL	Function
0	Off	00	0	Not used. Fixed to Off
1	On	02	2	Not used. Fixed to On
2	-	-	-	Not defined
3	Off	00	0	Not used. Fixed to Off
4	On	10	16	Not used. Fixed to On
5	Off	00	0	Not used. Fixed to Off
6	Off	00	0	Not used. Fixed to Off
7	Off	00	0	Not used. Fixed to Off

n = 4: Continuous Paper Detection Status

Bit	Off/On	HEX	DECIMAL	Function
0	Off	00	0	Not used. Fixed to Off
1	On	02	2	Not used. Fixed to On
2,3	Off,Off	00	0	Not used. Fixed to Off
	On,On	0C	12	Not used. Fixed to Off
4	On	10	16	Not used. Fixed to On
5,6	Off	00	0	Paper roll sensor. Paper is detected.
	On	60	96	Paper roll end is detected by the paper roll sensor
7	Off	00	0	Not used. Fixed to Off

ESC SP *n*

[Name] To set the right side space of the characters

[Type]

ASCII	ESC	SP	*n*
HEX	1B	20	*n*
DECIMAL	27	32	*n*

[Range] 0 ≤ *n* ≤ 255

[Description] To set the right side space of the characters

ESC ! *n*

[Name] To set the printer mode

[Type]

ASCII	ESC	!	*n*
HEX	1B	21	*n*
DECIMAL	27	33	*n*

[Range] 0 ≤ *n* ≤ 255

[Description] Printer mode is set depending on the value of n as follows

Bit	Off/On	HEX	DECIMAL	Function
0	Off	00	0	Font A(12x24) Selected
	On	01	1	Font C(9x24) Selected
1	Off	00	0	Not defined
	On	02	2	Not defined
2	-	-	-	Not defined
3	Off	00	0	Highlight mode is not set
	On	08	8	Highlight mode is set
4	Off	00	0	Double-height mode is not selected
	On	10	16	Double-height mode is selected
5	Off	00	0	Double-width mode is not selected
	On	20	32	Double-width mode is selected
6	-	-	-	Not defined
7	Off	00	0	Underline mode is not selected
	On	80	128	Underline mode is selected

ESC $ *nL nH*

[Name] To set absolute position

[Type]

ASCII	ESC	$	*nL*	*nH*
HEX	1B	24	*nL*	*nH*
DECIMAL	27	36	*nL*	*nH*

[Range] 0 ≤ *nL* ≤ 255
0 ≤ *nH* ≤ 255

[Description] To set the distance from the beginning point of the line and print the characters. The distance from the beginning point for the printing position means horizontal or vertical motion unit.

ESC % *n*

[Name] To select/cancel user defined character set

[Type]

ASCII	ESC	%	*n*
HEX	1B	25	*n*
DECIMAL	27	37	*n*

[Range] 0 ≤ *n* ≤ 255

[Description] To select/cancel user-defined character set.
User-defined character set is cancelled when LBS of *n* is 0,
User-defined character set is selected when LBS of *n* is 1.

ESC & *y c1 c2* [*x1 d1… d*(*y* X *x*1)]…[*xk d1…d*(*y* X *xk*)]

[Name] To define user-defined characters

[Type]

ASCII	ESC	&	*y*	*c1*	*c2*	[*x1 d1… d*(*y* X *x*1)]…[*xk d1…d*(*y* X *xk*)]
HEX	1B	26	*y*	*c1*	*c2*	[*x1 d1… d*(*y* X *x*1)]…[*xk d1…d*(*y* X *xk*)]
DECIMAL	27	38	*y*	*c1*	*c2*	[*x1 d1… d*(*y* X *x*1)]…[*xk d1…d*(*y* X *xk*)]

[Range] *y* = 3
32 ≤ *c*1 ≤ *c*2 ≤ 126
0 ≤ *x* ≤ 12 (Font A (12×24))
0 ≤ d1… d(y × xk) ≤ 255

[Description] To define user defined characters.
y defines the number of bytes in the vertical direction.
c1 defines the code of beginning character, and c2 defines the end code.
x defines number of dots in horizontal direction.

ESC * *m nL nH d1... dk*

[Name] To set bit image mode

[Type]

ASCII	ESC	*	*m*	*nL*	*nH d1... dk*
HEX	1B	2A	*m*	*nL*	*nH d1... dk*
DECIMAL	27	42	*m*	*nL*	*nH d1... dk*

[Range] *m* = 0, 1, 32, 33
0 ≤ *nL* ≤ 255 , 0 ≤ *nH* ≤ 3 , 0 ≤ *d* ≤ 255

[Description] Use m to select the bit image, where number of dots is defined by *nL* and *nH* as shown below.

m	Mode	Vertical Direction		Horizontal Direction (*1)	
		Number of dots	Density	Density	Number of Data (k)
0	8-dot single-density	8	67 DPI	100 DPI	*nL* + *nH* × 256
1	8-dot double-density	8	67 DPI	200 DPI	*nL* + *nH* × 256
32	24-dot single-density	24	200 DPI	100 DPI	(*nL* + nH (256)(3)
33	24-dot double-density	24	200 DPI	200 DPI	(nL + nH (256)(3)

ESC – *n*

[Name] To set/clear underline mode
[Type] ASCII ESC - *n*
HEX 1B 2D *n*
DECIMAL 27 45 *n*
[Range] 0 ≤ *n* ≤ 2, 48 ≤ n ≤ 50
[Description] Underline mode is set or cleared depending on the value of *n*.

n	Function
0,48	Underline mode is cleared
1,49	Underline mode is selected (Dot thickness – 1)
2,50	Underline mode is selected (Dot thickness – 2)

ESC 2

[Name] To set the 1/6 inches line space
[Type] ASCII ESC 2
HEX 1B 32
DECIMAL 27 50
[Description] To set the line space to 1/6 inches

ESC 3 *n*

[Name] To set the line space
[Type] ASCII ESC 3 *n*
HEX 1B 33 *n*
DECIMAL 27 51 *n*
[Range] 0 ≤ *n* ≤ 255
[Description] Line space will set to [*n* X vertical or horizontal motion unit] inches.

ESC = *n*

[Name] To set the peripheral devices
[Type] ASCII ESC = *n*
HEX 1B 3D *n*
DECIMAL 27 61 *n*
[Range] 0 ≤ *n* ≤ 255
[Description] Device sending the data to the host computer is selected by using *n*.

Bit	Off/On	HEX	DECIMAL	Function
0	-	-	-	Not defined
1	Off	00	0	Printer is not recognized
	On	02	1	Printer is recognized
2-7	-	-	-	Not defined

ESC ? *n*

[Name] To cancel the user defined character set

[Type]

ASCII	ESC	?	*n*
HEX	1B	3F	*n*
DECIMAL	27	63	*n*

[Range] 32 ≤ *n* ≤126

[Description] To cancel the user-defined character sets.

ESC @

[Name] To initialize the printer

[Type]

ASCII	ESC	@
HEX	1B	40
DECIMAL	27	64

[Description] This function purges the data in the buffer when the power is on or recovers the printer mode.

ESC D *n1...nk* NUL

[Name] To set the horizontal tab position

[Type]

ASCII	ESC	D	*n1...nk*	NUL
HEX	1B	44	*n1...nk*	00
DECIMAL	27	68	*n1...nk*	0

[Range] 1 ≤ *n* ≤ 255
0 ≤ *k* ≤32

[Description] To set the horizontal tab position
n defines the number of columns for the horizontal table from the beginning point of the line.
k is the total number of horizontal tabs.

ESC E *n*

[Name] To set highlight mode

[Type]

ASCII	ESC	E	*n*
HEX	1B	45	*n*
DECIMAL	27	69	*n*

[Range] 0 ≤ *n* ≤ 255

[Description] To select/clear highlight mode
Highlight mode is cleared when the LSB is 0.
Highlight mode is set when the LSB is 1.

ESC J *n*

[Name] To print and paper feed

[Type]

ASCII	ESC	J	*n*
HEX	1B	4A	*n*
DECIMAL	27	74	*n*

[Range] 0 ≤ *n* ≤ 255

[Description] To print the data in the printer buffer and feed the paper.
n x vertical or horizontal motion unit inches

ESC R *n*

[Name] To select multilanguage character sets

[Type]

ASCII	ESC	R	*n*
HEX	1B	52	*n*
DECIMAL	27	82	*n*

[Range] 0 ≤ *n* ≤ 10

[Description] To select the multilanguage character set with *n*.
Chinese version is not supported.

n	Character set	*n*	Character set
0	U.S.A.	6	Italy
1	France	7	Spain
2	Germany	8	Japan
3	U.K.	9	Norway
4	Denmark Ⅰ	10	Denmark Ⅱ
5	Sweden		

	Country	ASCII code (hexadecimal number)										
		23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
0	U.S.A.	#	$	@	[	\	]	^	‘	{	|	}	~
1	France	#	$	à	°	ç	§	^	‘	é	ù	è	¨
2	Germany	#	$	§	Ä	Ö	Ü	^	‘	ä	ö	ü	β
3	U.K.	£	$	@	[	\	]	^	‘	{	|	}	~
4	Denmark Ⅰ	#	$	@	Æ	Ø	Å	^	‘	æ	ø	å	~
5	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain	Pt	$	@	¡	Ñ	¿	^	‘	¨	ñ	}	~
8	Japan	#	$	@	[	¥	]	^	‘	{	|	}	~
9	Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10	Denmark Ⅱ	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü

ESC V *n*

[Name] To set/clear 90° clockwise rotated character sets

[Type]

ASCII	ESC	V	*n*
HEX	1B	56	*n*
DECIMAL	27	86	*n*

[Range] 0 ≤ *n* ≤ 1, 48 ≤ *n* ≤ 49

[Description] To set/clear 90° clockwise rotated character sets depending on the value of *n*.

n	Function
0,48	To clear the 90° clockwise rotated character
1,49	To set the 90° clockwise rotated character

ESC \ *nL nH*

[Name] To set the relative printer position

[Type]

ASCII	ESC	\	*nL*	*nH*
HEX	1B	5C	*nL*	*nH*
DECIMAL	27	92	*nL*	*nH*

[Range] 0 ≤ *nL* ≤ 255
0 ≤ *nL* ≤ 255

[Description] The beginning point is based on the current position by the horizontal and vertical motion unit. This command sets the position from the current position. [(*nL* + *nH* X 256) X (horizontal or vertical motion unit)].

ESC a *n*

[Name] Selective adjustment

[Type]

ASCII	ESC	a	*n*
HEX	1B	61	*n*
DECIMAL	27	97	*n*

[Range] 0 ≤ *n* ≤ 2, 48 ≤ *n* ≤ 50

[Description] All data for aligning in a line have clear positions.
Adjustment type by the selection of *n* is as follows.

n	Adjustment
0,48	Left adjustment
1,49	Middle adjustment
2,50	Right adjustment

ESC d *n*

[Name] To print and *n* line feed

[Type]

ASCII	ESC	D	*n*
HEX	1B	64	*n*
DECIMAL	27	100	*n*

[Range] 0 ≤ *n* ≤ 255

[Description] To print the data in the buffer and feed *n* lines

ESC p *m t1 t2*

[Name] To generate pulse

[Format]

ASCII	ESC	p	*m*	*t1*	*t2*
Hex	1B	70	*m*	*t1*	*t2*
Decimal	27	112	*m*	*t1*	*t2*

[Range] m = 0, 1, 48, 49
0 ≤t1 ≤255, 0 ≤t2 ≤255

[Description] Outputs the pulse specified by t1 and t2 to connector pin m as follows.

m	Connector pin
0, 48	Drawer kick-out connector pin 2
1, 49	Drawer kick-out connector pin 5

ESC t *n*

[Name] To select the character code table

[Type]

ASCII	ESC	t	*n*
HEX	1B	74	*n*
DECIMAL	27	116	*n*

[Range] 0 ≤ n ≤ 5, *n* = 11, 255

[Description] *n* is used to select the character code table as follows.
Chinese version is not supported.

n	Page
0	0: PC437 [U.S.A., standard Europe]
1	1: Katakana
2	2: PC850 [Multilingual]
3	3: PC860 [Portuguese]
4	4: PC863 [Canadian-French]
5	5: PC865 [Nordic]
11	11: PC858 [Euro]
255	Space page

[Default value] *n* = 0

ESC { *n*

[Name] To select/cancel the vertical inverted printing mode

[Type]

ASCII	ESC	{	*n*
HEX	1B	7B	*n*
DECIMAL	27	123	*n*

[Range] 0 ≤ *n* ≤ 255

[Description] To select or cancel the vertical inverted printing mode of the characters
- Vertical inverted mode is canceled when LSB is 0.
- Vertical inverted mode is selected when LSB is 1.

FS p *n m*

[Name] NV image output

[Type]

ASCII	FS	p	*n*	*m*
HEX	1C	70	*n*	*m*
DECIMAL	28	112	*n*	*m*

[Range] $1 \le n \le 255$, $0 \le m \le 3$, $48 \le m \le 51$

[Description] NV image is printed in various sizes depending on the value of *m*.

m	Mode	Vertical dot density	Horizontal dot density
0,48	Normal	200 DPI	200 DPI
1,49	Double-width	200 DPI	100 DPI
2,50	Double-height	100 DPI	200 DPI
3,51	Quadruple	100 DPI	100 DPI

n is the NV image number defined by using FS q command.
m defines the image mode.

FS q *n [xL xH yH d1 …dk]1…[xL xH yL yH d1…dk]n*

[Name] To define NV image

[Type]

ASCII	FS	q	*n*	*[xL xH yH d1 …dk]1…[xL xH yL yH d1…dk]n*
HEX	1C	71	*n*	*[xL xH yH d1 …dk]1…[xL xH yL yH d1…dk]n*
DECIMAL	28	113	*n*	*[xL xH yH d1 …dk]1…[xL xH yL yH d1…dk]n*

[Range] $1 \le n \le 255$, $0 \le nL \le 255$, $0 \le d \le 255$

$0 \le xH \le 3$ 3 (when $1 \le xL+xH \times 256 \le 1023$)

$0 \le yL \le 1$ (when $1 \le yL+yH \times 256 \le 288$)

k = $(xL+xH \times 256) \times (yL+yH \times 256) \times 8$

Total defined data area = 1M bits(128K bytes)

[Description] The value of *n* is used to define the NV image. The value n is the defined NV image number.

- xL and xH are used to set the NV image to (xL + xH(256))x8 dots in horizontal direction.
- yL and yH are used to set the NV image to (yL + yH(256))x8 dots in vertical direction.

GS *! n*

[Name] To select the character size

[Type]

ASCII	GS	!	*n*
HEX	1D	21	*n*
DECIMAL	29	33	*n*

[Range] $0 \le n \le 255$

(1≤Vertical number of times≤8, 1≤Horizontal number of times≤8)

[Description] Bits 0 to 2 are used to select the height of the characters and the bits 4 to 7 are used to select the width of the characters.

Bit	Off/On	HEX	DECIMAL	Function
0 ~1	Height of the characters. Refer to the Table 2			
4 ~ 5	Width of the characters. Refer to the Table 1			

Table 1: Width of the characters		
HEX	DECIMAL	Width
00	0	1 (normal)
10	16	2 (double-width)

Table 2: Height of the characters		
HEX	DECIMAL	Height
00	0	1 (normal)
01	1	2 (double-height)

GS (E pL pH fn [parameter]

[Name] To Customize NV memory area

[Description] Customize the NV user memory area. The table below explains the functions available in this command. Executes commands related to the user setting mode by specifying the function code fn.

fn	Format	No.	Function
1	GS (E pL pH fn d1 d2	1	Changes into the user setting mode
2	GS (E pL pH fn d1 d2 d3	2	Ends the user setting mode sessio. (Performs a soft reset.)
3	GS (E pL pH fn [a1 b18...b11]... [ak bk8...bk1]	3	Sets value(s) for the memory switch
4	GS (E pL pH fn a	4	Transmits the settings of the memory switch to the host

[Notes] - pL, pH specifies (pL + pH x 256) as the number of bytes after pH (fn and [parameter]).
- The user setting mode is a special mode to change the values in the NV user memory with this command.
- In Function 2, the printer performs software reset. Therefore, the printer clears the receive and print buffers, and resets all settings (user-defined characters, macros, and the character style) to the mode in effect at power on.
- Frequent write commands by this command, may damage the NV memory. Therefore, it is recommended to write to NV memory no more than 10 times a day.
- While processing this command, the printer is BUSY while writing data to the user NV memory and stops receiving data. Therefore it is prohibited to transmit data including the real-time commands during the execution of this command.

<Function 1> GS (E pL pH fn d1 d2 (fn=1)

[Format]

ASCII	GS	(	E	pL	pH	fn	d1	d2
Hex	1D	28	45	pL	pH	fn	d1	d2
Decimal	29	40	69	pL	pH	fn	d1	d2

[Range] (pL + pH x 256) = 3 (pL=3, pH=0)
fn=1
d1=73, d2=78

[Description] ▪ Enter the user setting mode and notifies that the mode has changed.

	HEX	DECIMAL	Number of Data
Header	37H	55	1 byte
Flag	20H	32	1 byte
NUL	00H	0	1 byte

▪ The following commands are enabled in the user setting mode.
<Function 2> through <Function 12> of GS (E, GS I.

<Function 2> GS (E pL pH fn d1 d2 d3 (fn=2)

[Format]

ASCII	GS	(	E	pL	pH	fn	d1	d2	d3
Hex	1D	28	45	pL	pH	fn	d1	d2	d3
Decimal	29	40	69	pL	pH	fn	d1	d2	d3

[Range] (pL + pH x 256) = 4 (pL=4, pH=0)
fn=2
d1=79, d2=85, d3=84

[Description]
- Ends the user setting mode and performs a software reset. Therefore, the printer clears the receive and print buffers, and resets all settings (user-defined character, downloaded bit images, macros, and the print mode) to the mode that was in effect at power on.
- This function code (fn=2) is enabled only in the user setting mode.

<Function 3> GS (E pL pH fn [a1 b18...b11]...[ak bk8...bk1] (fn=3)

[Format]

ASCII	GS	(	E	pL	pH	fn	[a1 b18...b11]... [ak bk8...bk1]
Hex	1D	28	45	pL	pH	fn	[a1 b18...b11]... [ak bk8...bk1]
Decimal	29	40	69	pL	pH	fn	[a1 b18...b11]... [ak bk8...bk1]

[Range] 10 ≤ (pL + pH x 256) ≤ 65535
fn=3
a=2, 9,10
b=48, 49, 50

[Default]
- all switches are set to Off (b=48).

[Description]
- Change the memory switch specified by a to the values specified by b.
  - When b=48, the applicable bit is turned to Off.
  - When b=49, the applicable bit is turned to On.
  - When b=50, the applicable bit is not changed.
- When a=2, the memory switch 2 is set as follows :

Bit	Setting value	Function
1		Reserved
2	48	Autocutter Function : Partial Cutting
	49	Autocutter Function : Full Cutting
3~8	Codepage selection	

- When a=9, the memory switch 9 is set as follows :

Bit	Setting value	Function
1	48	ENG
	49	Chinese/Korean
2~4		Reserved
5~8	International Character Set selection	

- When a=10, the memory switch 10 is set as follows

Bit	Setting value	Function
1		Reserved
2	48	Font A(12x24)
	49	Font C(9x24)
3	48	Printing density : Normal
	49	Printing density : Dark
4~5		Reserved
6~8		Partial cutting step selection

<Function 4> GS (E pL pH fn a (fn=4)

[Format] ASCII GS (E pL pH fn a
Hex 1D 28 45 pL pH fn a
Decimal 29 40 69 pL pH fn a

[Range] (pL + pH x 256) = 2 (pL=2, pH=0)
fn=4
a=1, 2, 8, 9, 10, 11

[Description] ▪ Transmits the setting value(s) of the memory switch specified by a.

	HEX	DECIMAL	Amount of Data
Header	37H	55	1 byte
Flag	21H	33	1 byte
Data	30H or 31H	48 or 49	8 bytes
NUL	00H	0	1 byte

▪ Data for the setting is transmitted as 8 bytes or a data string in the order from bit 8 to bit 1, as follows :
- Off : HEX = 30H / DECIMAL = 48
- On : HEX = 31H / DECIMAL = 49

GS * *x y d*1...*d* (*x* X *y* X 8)

[Name] To define the download bit image

[Type] ASCII GS * *x* *y* *d*1...*d* (*x* X *y* X 8)
HEX 1D 2A *x* *y* *d*1...*d* (*x* X *y* X 8)
DECIMAL 29 42 *x* *y* *d*1...*d* (*x* X *y* X 8)

[Range] 1 ≤ *x* ≤ 255
1 ≤ *y* ≤ 48 where, *x* x *y* ≤1536
0 ≤ *d* ≤ 255

[Description] Download bit image is used as clear dot by x and y.
- *x*: number of dots in horizontal direction
- *y*: number of dots in vertical direction (download bit image printing)

GS / *m*

[Name] To print download bit image

[Type] ASCII GS / *m*
HEX 1D 2F *m*
DECIMAL 29 47 *m*

[Range] 0 ≤ *m* ≤ 3, 48 ≤ *m* ≤ 51

[Description] The printing of download bit image is used as a clear mode by *m*.
Mode is selected by *m* as shown in the following table.

m	Mode	Vertical Dot Density	Horizontal Dot Density
0,48	Normal	200 DPI	200 DPI
1,49	Two times horizontal magnification	200 DPI	100 DPI
2,50	Two times vertical magnification	100 DPI	200 DPI
3,51	Overall two times magnification	100 DPI	100 DPI

GS :

[Name] To define beginning/end of macro
[Type] ASCII GS :
HEX 1D 3A
DECIMAL 29 58
[Description] To define beginning/end of macro

GS B *n*

[Name] Black and White switching printer mode on/off
[Type] ASCII GS B *n*
HEX 1D 42 *n*
DECIMAL 29 66 *n*
[Range] 0 ≤n ≤255
[Description] Black and White switching printer mode
- Black and White switching mode is OFF when LSB is 0
- Black and White switching mode is ON when LSB is 1

GS H *n*

[Name] To select the printing position of the HRI characters
[Type] ASCII ESC H *n*
HEX 1D 48 *n*
DECIMAL 29 72 *n*
[Range] 0 ≤ *n* ≤ 3 , 48 ≤ *n* ≤51
[Description] To select the printing position of HRI characters when printing the bar code
Select the printing position using n as shown below

n	Printing position	*n*	Printing position
0,48	No printing	2,50	Under the bar code
1,49	Over the bard code	3,51	Both over and under the bar code

- HRI (Human Readable interpretation)

[Default value] *n* = 0

GS I *n*

[Name] To send the printer ID
[Type] ASCII ESC I *n*
HEX 1D 49 *n*
DECIMAL 29 73 *n*
[Range] 1 ≤ *n* ≤ 3 , 49 ≤ *n* ≤ 51
[Description] To send the printer ID using *n* as shown below

n	Printer ID	Specifications	ID (HEXaDECIMAL)
1,49	Printer Model ID	SRP-150P / SRP150U / SRP-150S	30
2,50	Type ID		02
3,51	ROM Version ID	Depends on ROM version	10

GS L *nL nH*

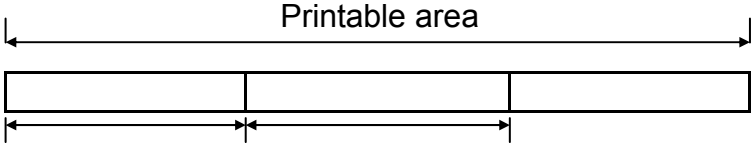
[Name] To set the left margin

[Type]

ASCII	GS	L	*nL*	*nH*
HEX	1D	4C	*nL*	*nH*
DECIMAL	29	76	*nL*	*nH*

[Range] 0 ≤ *nL* ≤ 255
0 ≤ *nH* ≤ 255

[Description] Left margin is determined by *nL* and *nH*.
Left margin is set to [(*nL* + *nH* X 256) X (horizontal motion unit6)] inches



① GS V *m*　② GS V *m n*

[Name] To Select cut mode and cut paper

[Type]

① ASCII	GS	V	*m*	
HEX	1D	56	*m*	
DECIMAL	29	86	*m*	
② ASCII	GS	V	*m*	*n*
HEX	1D	56	*m*	*n*
DECIMAL	29	86	*m*	*n*

[Range] ① *m* = 1, 49
② *m* = 66, 0 ≤ *n* ≤ 255

[Description] Selects a mode for cutting paper and executes paper cutting.
The value of *m* selects the mode as follows.

m	Print Mode
0, 1, 49	Partial cut (one point center uncut)
66	Feeds paper (cutting position + [*n* x)vertical motion unit)]), And cuts the paper partially (one point center uncut).

GS W *nL nH*

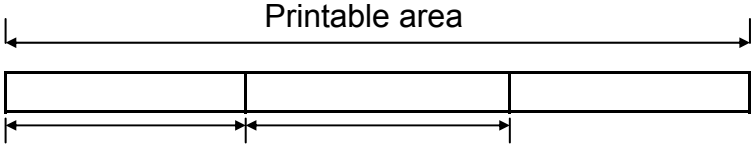
[Name] To set the printing area

[Type]

ASCII	GS	W	*nL*	*nH*
HEX	1D	57	*nL*	*nH*
DECIMAL	29	87	*nL*	*nH*

[Range] 0 ≤ *nL* ≤ 255 , 0 ≤ *nH* ≤ 255

[Description] Printing area is accurately set by *nL* and *nH*.
Printing area is set to [(*nL* + 256 x *nH*) x horizontal motion unit] inches.



GS ^ *r t m*

[Name] To run the macro

[Type]

ASCII	GS	^	*r*	*t*	*m*
HEX	1D	5E	*r*	*t*	*m*
DECIMAL	29	94	*r*	*t*	*m*

[Range] 0 ≤ *r* ≤ 255 , 0 ≤ *t* ≤ 255 , 0 ≤ *m* ≤ 1

[Description] To run the macro

- *r*: Repetition frequency of macro execution.
- *t*: Delay time for executing all macros is *t* X 100 msec.
- *m*: Macro execution mode

LSB of *m* = 0

Macros will be executed *r* times continuously with a delay time of *t*.

LSB of *m* = 1

After waiting for the delay time t, paper out LED indicator blinks, and the printer is in standby until the feed button is pressed. One the button is depressed, the printer executes the macro once. And this operation is repeated r times.

GS f *n*

[Name] To select the font of HRI (Human Readable interpretation) characters

[Type]

ASCII	GS	f	*n*
HEX	1D	66	*n*
DECIMAL	29	102	*n*

[Range] *n* = 0, 48

[Description] To select the font of HRI characters used for barcode printing
Chinese version is not supported.
Select the font as in the table shown below.

N	Font
0,48	Font A (12 * 24)

GS h *n*

[Name] To set the height of the barcode

[Type]

ASCII	GS	h	*n*
HEX	1D	68	*n*
DECIMAL	29	104	*n*

[Range] 1 ≤ *n* ≤ 255

[Description] To set the height of the barcode
n is number of dots in vertical direction.

[Default value] *n* = 162

① GS k *m d1...dk* NUL ② GS k *m n d1...dn*

[Name] To printer barcode

[Type]

①	ASCII	GS	k	*m*	d1...dk	NUL
	HEX	1D	6B	*m*	d1...dk	00
	DECIMAL	29	107	*m*	d1...dk	0
②	ASCII	GS	k	*m*	*n*	d1...dn
	HEX	1D	6B	*m*	*n*	d1...dn
	DECIMAL	29	107	*m*	*n*	d1...dn

[Range] ① 0 ≤ *m* ≤ 6 (Values for k and d are determined by the barcode system.)

② 65 ≤ *m* ≤ 73 (Values for n and d are determined by the barcode system.)

[Description] Select the bar code system and print the barcode.

m		Barcode System	Number of Characters	Remarks
①	0	UPC-A	11≤k≤12	48≤d≤57
	1			
	2	JAN 13(EAN)	12≤k≤13	48≤d≤57
	3	JAN8(EAN)	7≤k≤8	48≤d≤57
	4	CODE39	1≤k	48≤d≤57,65≤d≤90,32, 36,37,43,45,46,47
	5	ITF	1≤k (even number)	48≤d≤57
	6	CODABAR	1≤k	48≤d≤57,65≤d1≤68, 36,43,45,46,47,58

M		Barcode System	Number of Characters	Remarks
②	65	UPC-A	11≤n≤12	48≤d≤57
	66			
	67	JAN13(EAN)	12≤n≤13	48≤d≤57
	68	JAN8(EAN)	7≤n≤8	48≤d≤57
	69	CODE39	1≤n≤255	48≤d≤57,65≤d≤90,32, 36,37,43,45,46,47
	70	ITF	1≤n≤255 (even number)	48≤d≤57
	71	CODABAR	1≤n≤255	48≤d≤57,65≤d1≤68 36,43,45,47,58
	72	CODE93	1≤n≤255	0≤d≤127
	73	CODE128	2≤n≤255	0≤d≤127

[When using CODE93 (*m*=72)]

- The printer will print the beginning of the HRI string with HRI character (□).
- The printer will print the end of the HRI string with the HRI character (□).
- The printer will print the control characters with HRI character (■ + an alphabetic character).

Control character			HRI	Control character			HRI
ASCII	HEX	DECIMAL	character	ASCII	HEX	DECIMAL	character
NUL	00	0	■U	DLE	10	16	■P
SOH	01	1	■A	DC1	11	17	■Q
STX	02	2	■B	DC2	12	18	■R
ETX	03	3	■C	DC3	13	19	■S
EOT	04	4	■D	DC4	14	20	■T
ENQ	05	5	■E	NAK	15	21	■U
ACK	06	6	■F	SYN	16	22	■V
BEL	07	7	■G	ETB	17	23	■W
BS	08	8	■H	CAN	18	24	■X
HT	09	9	■I	EM	19	25	■Y
LF	0A	10	■J	SUB	1A	26	■Z
VT	0B	11	■K	ESC	1B	27	■A
FF	0C	12	■L	FS	1C	28	■B
CR	0D	13	■M	GS	1D	29	■C
SO	0E	14	■N	RS	1E	30	■D
SI	0F	15	■O	US	1F	31	■E
				DEL	7F	127	■T

<Example> Output GS k 72 7 67 111 100 101 13 57 51

[When using CODE128 (*m*=73)]

- When CODE128 is used for the printer, the details of the data transmission are as follows.

① Code set character in front of the barcode string
One of CODE A, CODE B, or CODE C must be selected.

※ Description of the CODE128 bar code

CODE128 barcode is the combination of three types of code sets and 103 different barcode characters, and one barcode can represent 128 ASCII codes and two digit numbers. Each code set can represent the following characters.
* Code set A: ASCII character 00H to 5FH
* Code set B: ASCII character 20H to 7FH
* Code set C: Two digits number (100 numerals from 00 to 99)

The following characters can be represented by the CODE128 barcode.

* SHIFT characters
  In the code set A, the character right next to the SHIFT follows the process of code set B. SHIFT character cannot be used in code set C.
* Code set selection character (CODE A, CODE B, CODE C).
  This character converts the code set A, B, or C into following code set.
* Function character (FNC1, FNC2, FNC3, FNC4)
  Using function characters depends on the application program.
  Only FNC1 can be used in code set C.

② Special characters are defined as the combination of two characters, "{", and one character. ACSII character "{" is defined as two consecutive transmissions of "{".

Specific character	Transmit data		
	ASCII	HEX	DECIMAL
SHIFT	{S	7B,53	123,83
CODE A	{A	7B,41	123,65
CODE B	{B	7B,42	123,66
CODE C	{C	7B,43	123,67
FNC1	{1	7B,31	123,49
FNC2	{2	7B,32	123,50
FNC3	{3	7B,33	123,51
FNC4	{4	7B,34	123,52
"{"	{{	7B,7B	123,123

<Example> Example for printing "No. 123456"
In this example, code B is used for "No." and the following numbers are printed in code B.

GS k 73 10 123 66 78 111 46 123 67 12 34 56

* If there is no code selection character in front of the bar code data, the printer will stop executing the command and the following data will be processed as general data.

* If "{" and the following character does not correspond to the certain special character, the printer will stop executing the command, the following data will be processed as general data.
* Code selection character and the SHIFT character are not printed as HRI characters.
* FUNCTION characters will be shown as spaces in HRI characters.
* Control characters (<00>H to <1F>H and <7F>H) will be shown as spaces in HRI characters.

<Miscellaneous> The empty space on the left and right sides of the barcode must be secured.
(The empty space requirements are different depending on barcode type.)

GS v 0 *m xL xH yL yH dl…dk*

[Name] To print raster bit image

[Type]

ASCII	GS	v	0	*m*	*xL*	*xH*	*yL*	*yH*	*dl…dk*
HEX	1D	76	30	*m*	*xL*	*xH*	*yL*	*yH*	*dl…dk*
DECIMAL	29	118	48	*m*	*xL*	*xH*	*yL*	*yH*	*dl…dk*

[Range] $0 \le m \le 3$, $48 \le m$ (51

$0 \le xL \le 255$, $0 \le xH \le 255$, $0 \le yL \le 255$

0 (*d* (255

k = (*xL*+*xH*x256) x (*yL*+*yHx*256) (k=0)

[Description] To select the raster bit-image mode

The value of m for selecting each mode is as follows.

m	Mode	Vertical dot density	Horizontal dot density
0,48	Normal	200dpi	200dpi
1,49	Double-width	200dpi	100dpi
2,50	Double-height	100dpi	200dpi
3,51	Quadruple	100dpi	100dpi

- xL and xH are for selecting the number of data bit (xL + xH x 256) in horizontal direction of the image.
- yL and yH are for selecting the number of data bit (yL + yH x 256) in vertical direction of the image.

GS w *n*

[Name] To set the barcode width

[Type]

ASCII	GS	w	*n*
HEX	1D	77	*n*
DECIMAL	29	119	*n*

[Range] $2 \le n \le 6$

[Description] To set the width of the barcode

n	Module width (mm) for Multi-level Bar Code	Bi-level Bar Code	
		Thin element width (mm)	Thick element width (mm)
2	0.250	0.250	0.625
3	0.375	0.375	1.000
4	0.500	0.500	1.250
5	0.625	0.625	1.625
6	0.750	0.750	2.000

- Multilevel barcode: UPC-A, UPC-E, JAN13, CODE93, CODE128
- Bi-level barcode: CODE39, ITF, CODABAR

[Default value] *n* = 3

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